

ABSTRACT

An improved design for hammermills. The invention contains a centered rotor from which eight rows of hammers pulverize material against cutting plates inside a working chamber. The cutting plates have slots that are angled. The hammers may have a beveled, angled leading edge. Both the angled cutting plate slots and the angled hammer leading edges work to drive the material through the working chamber in a helical fashion, with a preferred travel profile of 450 degrees, but the helix length is adjustable depending on the specific needs. There are no perforated screens in the hammermill, thus the material is placed in an inlet, is urged through the hammermill by the action of the rotating hammers where the material is comminuted and then removed via an exit. The communitive efficiency and particle size may be affected by the following adjustable elements: The clearance distance between the hammer tips and the cutting plate; the degree of angle of the cutting plate slots, the degree of angle of the hammers' leading edges; the density and pattern of the cutting plate slots; the speed of rotation of the hammers; and the length of helical travel of the material within the working chamber. The invention further provides a discharge assist by allowing one set of hammers to be non-beveled so that the material is swept along. A second discharge assist embodiment provides that the last section of the helix is smooth to increase the particle speed at the outlet.